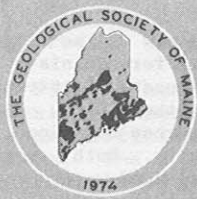


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THE MAINE GEOLOGIST

THE NEWSLETTER OF THE GEOLOGICAL SOCIETY OF MAINE

JANUARY

1984

VOL. 10 NO. 2

President's Message

Andy Tolman

I notice on reading our masthead that 1984 is the tenth anniversary of the Society. This event should be cause for both celebration and reflection. The Society has a significant paid-up membership and is turning out in reasonably good numbers for meetings and trips. It also occasionally finds itself in competition with other societies for attention and audience. While we are working on avoiding such conflicts (note the Seismic Profiling field trip and the upcoming winter meeting co-sponsored with MMRA), keeping Maine's community of geoscientists together is a continuing problem.

A related concern on our tenth anniversary is that of attracting participants in and ideas for meetings. We must continue to attract fresh blood to be active in the Society; this will help to spread the load and provide us with a continuing variety in our productions. However, in seeking out new participants, we must not lose those members who, over the years, have worked long and hard to keep the Society afloat. We must continue to challenge and interest these members; it is the least we can do in repayment for their service.

The fall meeting was well-attended, with good presentations from Art Hussey, Woody Thompson, Craig Findlay, Bob Gerber, and Dorothy Tepper, as well as an impromptu speech by Dick Anderson. The consensus of the discussion following was that there were significant opportunities to use computers in geosciences, but that a well-thought-out approach was needed to avoid losing rather than gaining efficiency. Much work remains before a state-wide geologic data base is a reality (or, indeed, even close enough to talk about...).

Plan to attend the joint winter meeting of GSM and MMRA: learn about the expanding marine program and meet the economic types. It will be worth braving the snow!

By the time this is printed we will have had (weather permitting) a field trip to the Deep Crustal Seismic Line. The big shakers are a very impressive sight. With luck, some structure can be "migrated" into the results.

(See short article on following pages)

WINTER MEETING GSM - MMRA

Geological Society of Maine
Maine Mineral Resources Association
Joint Meeting
February 10, 1984

Current Marine Research: Boardman Hall, UMO

- 2:00 - 4:30 Joe Kelley, MGS: Marine Geology of Casco Bay
Craig Shipp, UMO: Geomorphology of Gouldsboro Bay
Dan Belknap, UMO: Seismic Stratigraphy of the Damariscotta-Sheepscot River Area
Sarah Miller, UMO: Late Quaternary Deposits in the Cherryfield Area
Chloe Chunn, UMO: Late Quaternary Geological History of the Upper Damariscotta River
- 4:45 - 5:30 MMRA Business Meeting
- 5:30 - 6:30 Social Hour: Pilot's Grill
- 6:30 - 8:00 Dinner: Pilot's Grill
- 8:00 - Dr. Edward Evenson, Lehigh University: Prospecting for Ore Minerals in the Glacial Deposits of Alaska

GSM SPRING MEETING
FRIDAY MARCH 30, 1984
BATES COLLEGE

The Spring Meeting of the Geological Society of Maine will be held at Bates College. This should be a highlight of our Society's year. This is a time to recognize the excellent work of the future geologists being trained in Maine Colleges. Student presentations will made and this year to encourage MORE students, we are asking that some papers be presented in Poster Sessions. This is important as the number of oral reports must of necessity be limited.

PLEASE HELP TO MAKE THIS A SUCCESSFULL EVENT
URGE YOUR STUDENTS TO PARTICIPATE

Information will be sent to colleges in Jan. For more details please contact Dr. Donald Newberg, Bates College, Dept. of Geology, Lewiston, Maine 04240. Phone: 207-786-6155.

Maine Geological Survey Activities
W. B. Thompson

This fall has been especially busy for the MGS, with both ongoing programs and other geological issues. The DOE project continues to be one of our major activities as we near completion of the new state geologic maps. The editors are close to finishing both the bedrock and surficial maps, and the Cartographic Division is readying them for publication.

December's snow brought an end to the field season, which had seen a variety of bedrock and surficial mapping projects. In addition to the basic quadrangle mapping program, several people carried out field work for the NRC-funded Crustal Warping Study. Most recently, Al Ludman completed an investigation of bedrock faults near Princeton; and Don Koons is conducting an inventory and assessment of all known postglacial bedrock faults in Maine. Work also continues on the crustal subsidence in coastal Maine, with publication of a bulletin planned for later this winter.

Geologists from the MGS, USGS, and DEP have participated in a study of gravel aquifers in the Oxford County area. The seismic profiles, installation of monitoring wells, and mapping of the aquifers were completed by the end of the field season.

Radioactive waste disposal is a major issue confronting the state, and the MGS is providing input to Maine's Low-Level Waste Siting Commission. The latest task to be completed is a screening study, performed by Bob Gerber and Bill Holland for MGS, of till deposits in the unorganized townships. These may be favorable sites for waste disposal. Both Walter Anderson and Marc Loiselle are very busy with the Commission's activities.

Geologic hazards were prominently featured this fall, as the MGS addressed numerous questions relating to earthquakes, the Gorham landslide, floods, and coastal erosion (the latter in relation to seawall construction). These events point to the need for more specific studies dealing with hazard-prone areas and the necessity for geologic factors to be considered in environmental law.

Maine was once again the host state for the annual New England Intercollegiate Geological Conference. This fall's meeting in the Greenville-Millinocket area was organized by Dee Caldwell and Lindley Hanson. Many of the widely ranging field trips were the outgrowth of mapping studies supported by the MGS.

The Maine Geological Survey is collecting information on post-glacial faulting in the State, under contract to the Nuclear Regulatory Commission. If, in your work, you have noted any cases in which glacial markings have been offset, or glacial deposits show evidence of displacement, I'd much appreciate hearing about the sites, with as precise a location as possible. I hope to be able to recover the localities, in order to make detailed measurements, photos, or sketches. Donaldson Koons RFD 1, #4582
Oakland, ME 04963

On October 19, 1983, the Secretary of the Interior transferred responsibility for administering the State Water Resources Research Institutes from the Office of Water Policy to the U.S. Geological Survey. The Water Resources Division will be responsible for this activity. Both the U.S.G.S. and National Association of Water Institute Directors have expressed pleasure and optimism regarding their new association. The program should result in closer ties between the Water Institutes and the Survey's State Offices.

On December 6th, Derrill Cowing (Chief, Maine Office, U.S.G.S) met with Dr. Paul Uttormark (Director, Land and Water Resources Center at the University of Maine at Orono) and Marc Sullivan (Executive Secretary of the Land and Water Resources Council) to discuss the water resources programs and activities of all three groups.

Saco River Aquifer Study

The Saco River and its associated water course aquifer form a resource that is important to Maine and New Hampshire. Water from the Saco River is utilized for public supply in southwestern coastal Maine by the towns of Saco and Biddeford. The aquifer provides public supplies for Bartlett and Conway, New Hampshire and Fryeburg, Maine.

In order to develop a better understanding of the river/aquifer system, the U.S. Geological Survey has undertaken a three year study in cooperation with the Maine Geological Survey, the Town of Conway, New Hampshire, and the New Hampshire Water Pollution Control Commission. The objectives of the study are to (1) assess the quantity and quality of water available from the aquifer; (2) determine the effects of increased pumping on ground-water levels and base flow of the river; and (3) determine the effects of subsurface disposal of sewage on ground-water quality.

The study area will extend from Bartlett, New Hampshire to Fryeburg, Maine along the Saco River. Expected products will include maps of the aquifer showing water table elevations, bedrock elevations, saturated thickness, and aquifer permeability. Ground and surface water samples will be collected for analysis of common and trace inorganic compounds and selected organic substances. A computer model will be used to simulate flow of ground-water in the aquifer.

Special topics and techniques that will be investigated during the study include use of electromagnetic geophysics to determine location of fine-grained silts and clays, recharge to stratified drift from upland till areas, and use of a variety of methods to determine aquifer permeability. The project staff will include Dan Morrissey, Dorothy Tepper, and Carole Johnson, all from the U.S. Geological Survey in Augusta. If there are any questions or if anyone has any information on these areas, please contact Dan Morrissey at (207) 622-8208.

The Forge of Science

How many learned men are working at the forge of science-laborious, ardent tireless Cyclopes, but one-eyed!

- Joseph Joubert

Deep Crustal Seismic Trip

Fifteen hardy souls visited the deep crustal line December 10. We were impressed with the efficiency and automation of the big shakers. The 4 vibrator trucks are computer synchronized with the data acquisition/processing van. The multiplexing of signals puts 8 miles of geophones (with 6 every 100 feet) into a wire about the size of an extension cord. The other 8 miles takes another wire.

The vibrators set up every 200 feet and perform 18 15-second sweeps, with a 15-second pause between sweeps to listen for reflections. They move about 10 feet between sweeps to keep from cratering the road surface. Although most of the energy is dissipated into the earth, enough is reflected back so that some structure (at 4 to 6 seconds "down") is visible. It may be that these reflectors are related to plate structure, batholith bottoms and/or decollements.

As the data is reprocessed on the "big" computer (the field computer has only a couple of megabytes), more structure should become visible. Next summer there will be some shallower refraction work to nail down velocities. This should be a good show, with 1 to 2 ton charges set 150-200 feet down. We should run a trip to see it.

COMPUTER PROGRAMS - INFORMATION

Excerpts from a letter from Robert D. Turley a Geological Engineer with more than 30 years experience in geology, and geophysics for mining, oil and gas. "This is an effort to contact other geoscientists who need software, and the GEOPROGRAMMERS who seek recognition for their work. I know that other GEOPROGRAMMERS have written programs that I could use, and I have programs that they can use; many of us are reinventing the wheel. We need a clearing house for geoscience software. That is the purpose of GEOWARE "

"GEOWARE is the worldwide contact between geoscientists producing earth science related microcomputer programs, and microcomputer owners who need geoscience software. Proprietary and public domain software are included. More than 1200 oil, gas, mining, geological and geophysical organizations and agencies are being asked to announce this service to their members and staff."

Contact: Rob Turley, (303) 741-5720 or write to: GEOWARE; 7173 So. St. Paul; Littleton, Colorado; 80122. Lists, or a catalog of available geoscience software can be obtained from GEOWARE after Jan 1, 1984.

1983 ANNUAL MEETING

The 1983 Annual Meeting of the Geological Society of Maine was called to order by President John Tewhey at 9:15 PM July 30, 1983. The meeting took place at John's home in Gorham, Maine.

For the entire society, John thanked John Creasy and Kristine Crossen for their efforts in preparing and leading this year's field trips.

The major order of business in addition to the election of officers was the publication of our long discussed Field Trip Bulletin. It is ready to go to press but publication costs will be more than our treasury contains (approximately \$1600.00).

VOTE 300 copies of Bulletin # 3 (Field Trip Bulletin) be printed at a cost of about \$2020.00. The Society to underwrite this expense by borrowing \$200.00 each from five members on a short term basis. Interest would be a free Bulletin. Bulletin to sell (postpaid) for \$8.00 to GSM members, \$10.00 to others.

Passed

The nominating committee recommended the following slate of officers for '83-84.

President - Andy Tolman
Vice President - Dorothy Tepper
Treasurer - Bob Gerber
Secretary - Carol White
Newsletter Editor - Roy Farnsworth
Director - Stephen Pollock (three year term)

VOTE To accept the above slate made by the nominating committee.

Passed

A vote of thanks to John Tewhey and other outgoing officers came from the floor.

The meeting was adjourned at 10:20 PM.

Respectively Submitted

Archie W. Berry, Jr., Secretary

1983 FALL MEETING

The Fall Meeting of the Geological Society of Maine was called to order at 3:30 p.m. on November 10, 1983 with approximately 30 attentive members present. The meeting was held at Jewett Hall, U. M. at Augusta.

The afternoon featured presentations on the New 1:500,000 Bedrock and Surficial Maps of Maine. Woody Thompson, MGS, described the technique of "enhancing" the 15' quads and photo-reducing them to a 1:250,000 scale at which the State map was compiled. Art Hussey, MGS and Bowdoin College, followed with a description of the Bedrock Map. The compilers worked directly on the 1:250,000 scale 2° sheets. The new map includes several controversial cross-sections, and a generalized Tectonic Map. Art mentioned that this map is just a picture of on-going research, not a final (gasp) interpretation.

A swift Business meeting included a Treasurer's Report, and plans for the next meeting - see front page. The Spring Meeting and Summer Field Trips were discussed, tentative commitments were elicited in front of witnesses for a trip to metamorphosed Boothbay, and a coastal site.

The evening program focused on Computer Applications in the Geosciences. Craig Findlay, Jordan Gorrill Ass. discussed methods of modeling pile loading and shear stress; Bob Gerber described methods of modeling groundwater and contaminant movement, and Dorothy Tepper, U.S.G.S., described how the computer is used in collecting and interpreting seismic data.

The meeting adjourned shortly after 10 p.m.

C.W.

MEMBERSHIP DUES STATEMENT

THE GEOLOGICAL SOCIETY OF MAINE, INC. is a non-profit Maine corporation established as an educational Society to advance the professional improvement of its members; to inform its members and others of current and planned geologic programs in Maine; to encourage continuing social contact and dialogue among geologists working in Maine; and to further public awareness and understanding of the geology of the State of Maine, and of the modern geologic processes which affect the Maine landscape and the human environment.

The Society holds three meetings each year, in the late fall, early spring and (with the Annual Meeting and sometimes field trips) in mid-summer. A newsletter, THE MAINE GEOLOGIST, is published for all members four times a year (more or less), approximately on a quarterly basis starting in September. The Society year runs from August 1st to July 31st. Annual dues and gift contributions to the Society are tax deductible. There are three classes of annual memberships:

- \$5 REGULAR MEMBER - Graduate geologists, or equivalent, with 1 year of practice in geology, or with an advanced academic degree in geology
- \$4 ASSOCIATE MEMBER- Any person or organization desirous of association with the Society
- \$2 STUDENT MEMBER - Persons currently enrolled as students in college who are interested in geology
- \$2 APPLICATION FEE - A one-time fee to all new members, payable when applying for membership

ANNUAL RENEWAL or APPLICATION FOR MEMBERSHIP - THE GEOLOGICAL SOCIETY OF MAINE

NAME _____
(Please print or type)

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(Permanent Mailing Address)

Zip Code

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Student Member \$2 per year \$ _____
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THE GEOLOGICAL SOCIETY OF MAINE, INC.

83-84 SOCIETY YEAR STARTED AUGUST 1st - PLEASE SEND IN YOUR DUES

THE GEOLOGICAL SOCIETY OF MAINE
c/o Arthur M. Hussey, Dept. of Geology,
Bowdoin College, Brunswick, Maine 04011

THE MAINE GEOLOGIST is published four times a year, more-or-less, in early Fall, late Fall, late Winter, and maybe June or July, for members of the Geological Society of Maine, a non-profit educational Maine corporation interested in all aspects of the geology of the State of Maine.

Correspondence about membership in the Society should be mailed to Robert G. Gerber, Ash Point Rd., South Harpswell, 04079. Items for inclusion in the newsletter may be directed to Roy L. Farnsworth, Dept. of Geology, Bates College, Lewiston 04240.

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